

## POTAMOGETON GRAMINEUS WITH ADNATE STIPULES

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While conducting field work during the summer of 1972 I collected a peculiar pondweed. The plant (Figure 1) initially appeared to be a multi-branched, shallow water form of *Potamogeton oakesianus* Robbins. It was found in an unnamed pond on the north side of Browns Ridge Road at the junction of New Hampshire Route 16, Ossipee, Carroll County, New Hampshire. This pond is a small (about 15 × 25 m), shallow (45 cm), muddy-bottomed body of water with a pH of 6.2 and an alkalinity of 6.0 mg/l CaCO<sub>3</sub>. Aquatic plants present were *Sparganium chlorocarpum* Rydb., *Potamogeton epihydrus* Raf., and *Nuphar variegatum* Engelm.

Collected specimens (4486) were shown to Eugene C. Ogden who located a few adnate stipules on the plants. This discovery led to a taxonomic problem since *Potamogeton oakesianus* is not known to produce adnate stipules. Leaf-stipule adnation is a character found in *Potamogeton filiformis* Pers., *P. vaginatus* Turcz., *P. pectinatus* L., *P. robbinsii* Oakes, *P. spirillus* Tuckerm., *P. bicupulatus* Fern., *P. diversifolius* Raf. and *P. tennesseeensis* Fern.

This plant has been observed during several seasons. In September, 1974, Dr. Ogden and I visited the pond and collected a number of specimens (Hellquist, 9939 & Ogden). The stem anatomy was studied by Dr. Ogden. The anatomical pattern agrees well with that of *Potamogeton gramineus*, but could include that of some specimens of *P. oakesianus*. Neither is known to have adnate stipules. Although fruits were not found, a young pistil indicated that the coil of the embryo agrees with that for *P. gramineus* and *P. oakesianus*. Its general appearance is that of *P. tennesseeensis* but the embryo coil and the shape of the endodermis cells are not of that species.

The population is sterile, suggesting a possible hybrid exists. The possibilities of *Potamogeton oakesianus* or *P. gramineus* crossed with *P. filiformis* or *P. pectinatus* are not likely probabilities since the latter two species are found in alkaline waters and not within 50 miles of the pond. The possibility of a cross with either *P. bicupulatus* (*P. capillaceus* Poir.) or *P. spirillus* seems more reasonable since these acid water taxa are common in the area.

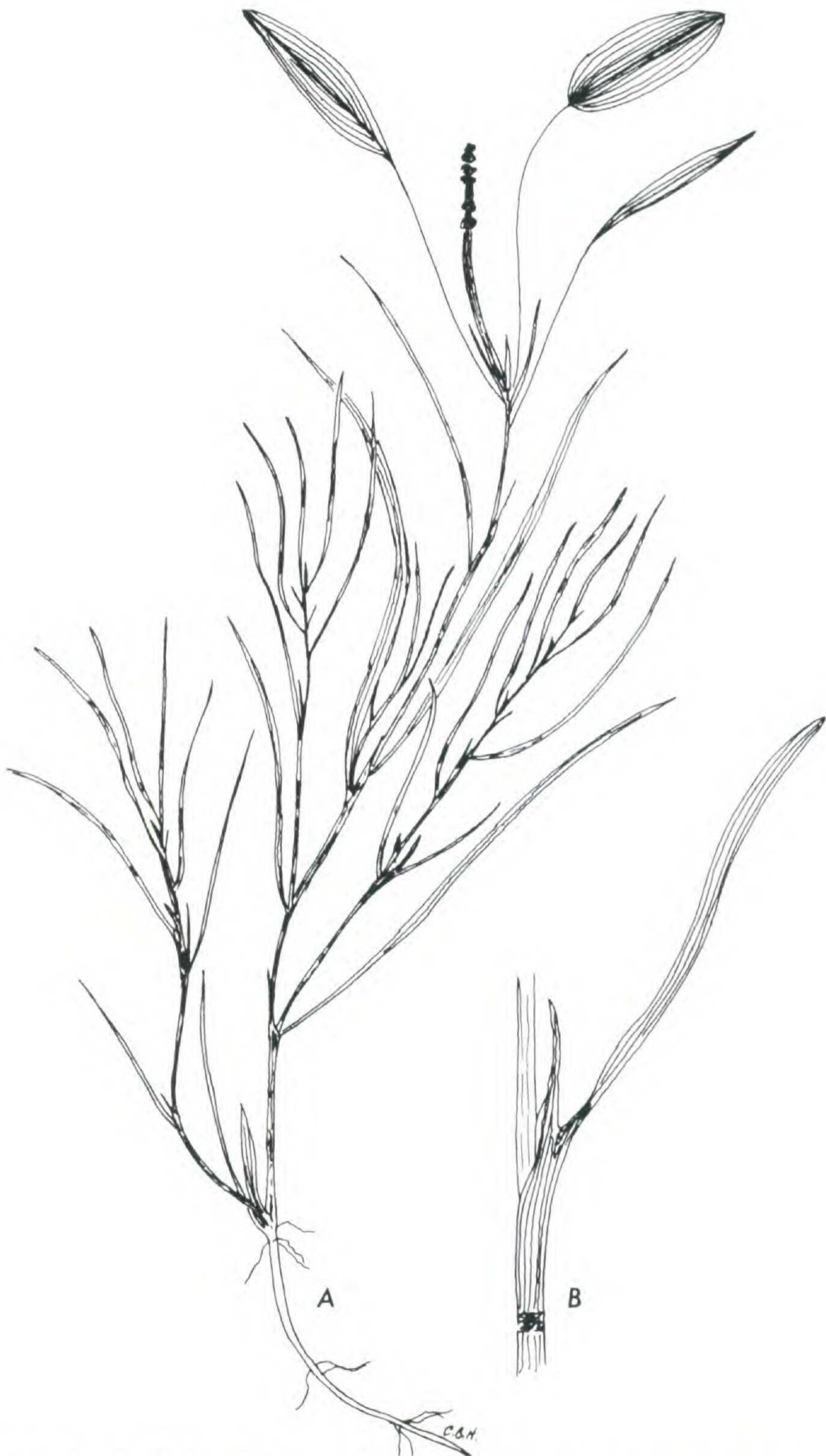


Figure 1. A, Habit of Browns Ridge Road Pond population of *Potamogeton gramineus*,  $\times \frac{1}{2}$ ; B, Adnate stipule  $\times 5$ .

Paper chromatography was conducted on this population along with other populations of *Potamogeton filiformis*, *P. pectinatus*, *P. spirillus*, *P. bicupulatus*, *P. epihydrus*, *P. gramineus* and *P. oakesianus*. The chromatographic technique utilized a 4:1:5 n-butanol, acetic acid, water mixture in the first dimension and a 5% acetic acid solution in the second dimension. Upon observing spot patterns of the populations from the above taxa it appeared that the Browns Ridge Road material best matched *P. gramineus*.

In addition to the adnate stipules on some of the leaves, this particular population differs from other collections of *Potamogeton gramineus* in other characters. The submersed leaves are narrower and many have only one vein. This is similar to that of *P. gramineus* L. forma *minimus* Morong (Morong, 1893). These plants are even more delicate than those of *P. gramineus* L. var. *myriophyllus* Robbins. Specimens have been deposited in the herbaria of Boston State College and various other institutions.

#### ACKNOWLEDGMENT

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#### LITERATURE CITED

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